

CLAIMS

1. Use of a recording sheet in a digital printing process on a digital printing press, the recording sheet including a paper substrate containing an insoluble mineral filler, said filler including aluminium trihydrate.
- 5 2. Use of a recording sheet according to claim 2, wherein the paper substrate contains between 50 and 400, preferably between 100 and 300, more preferably approximately 200 parts dry weight of aluminium trihydrate to 800 parts dry weight of pulp.
3. Use of a recording sheet according to any one of the preceding claims, wherein the recording sheet has a surface treatment including magnesium sulphate and polyvinyl
10 pyrrolidone.
4. Use of a recording sheet according to claim 3, wherein the surface treatment including magnesium sulphate and polyvinyl pyrrolidone is applied to the paper at a rate of 2 to 4g/m².
5. Use of a recording sheet according to any one of the preceding claims, wherein the
15 recording sheet has a surface treatment including starch and polyvinyl alcohol.
6. Use of a recording sheet according to claim 5, wherein the surface treatment including starch and polyvinyl alcohol includes an optical brightening agent.
7. Use of a recording sheet according to claim 5 or claim 6, wherein the surface treatment including starch and polyvinyl alcohol is applied to the paper at a rate of 1 to
20 2g/m².
8. Use of a recording sheet according to any one of the preceding claims, wherein the recording sheet has a surface treatment including a soluble or insoluble metal from Groups II and III or the Transition Metals of the Periodic Table.
9. Use of a recording sheet according to any one of the preceding claims, wherein the
25 recording sheet is substantially opaque.
10. A method of printing on a recording sheet using a digital printing press, characterised in that the recording sheet is as defined in any one of the preceding claims.

11. A method of manufacturing a recording sheet for use in a digital printing process on a digital printing press, the method including making up a slurry in water containing paper pulp and aluminium trihydrate, and forming the slurry into a web of paper on a paper machine.
- 5 12. A method according to claim 11, wherein the slurry contains between 50 and 400 parts, preferably between 100 and 300 parts, more preferably approximately 200 parts dry weight of aluminium trihydrate to 800 parts dry weight of pulp.
13. A method according to claim 11 or claim 12, the method including treating the surface of the paper with a surface treatment including magnesium sulphate and polyvinyl pyrrolidone.
- 10 14. A method according to claim 13, wherein the surface treatment including magnesium sulphate and polyvinyl pyrrolidone is applied to the paper at a rate of 2 to 4g/m².
15. A method according to any one of claims 11 to 14, the method including treating the surface of the paper with a surface treatment including starch and polyvinyl alcohol.
- 15 16. A method according to claim 15, wherein the surface treatment including starch and polyvinyl alcohol includes an optical brightening agent.
17. A method according to claim 15 or claim 16, wherein the surface treatment including starch and polyvinyl alcohol is applied to the paper at a rate of 1 to 2g/m².
18. A method according to any one of claims 15 to 17 when dependent on any one claims 13 and 14, wherein the surface treatment including magnesium sulphate and polyvinyl pyrrolidone and the surface treatment including starch and polyvinyl alcohol are applied to the paper surface as separate treatments.
- 20 19. A method according to any one of claims 12 to 19, the method including treating the surface of the paper with a surface treatment including a soluble or insoluble metal from
- 25 Groups II and III or the Transition Metals of the Periodic Table.

20. Use of a recording sheet in a digital printing process on a digital printing press, the recording sheet including a paper substrate having a surface treatment including a water soluble cationic substance and a water soluble binder substance.
21. Use of a recording sheet according to claim 20, wherein the cationic substance is a
5 soluble polyvalent metal salt.
22. Use of a recording sheet according to claim 21, wherein the cationic substance is a salt of a metal from Groups II and III or the Transition Metals of the Periodic Table.
23. Use of a recording sheet according to claim 22, wherein the cationic substance is a salt of a cation selected from the group consisting of Mg^{2+} , Ca^{2+} , Al^{3+} , Zr^{4+} and Zn^{2+} .
- 10 24. Use of a recording sheet according to claim 23, wherein the cationic substance is magnesium sulphate.
25. Use of a recording sheet according to claim 24, wherein the amount of magnesium sulphate applied to the surface of the recording sheet is in the range $0.5-3.0g/m^2$, and preferably $1.0-2.0g/m^2$, and advantageously approximately $1.25-1.75g/m^2$.
- 15 26. Use of a recording sheet according to claim 20, wherein the cationic substance is a cationic polymer.
27. Use of a recording sheet according to claim 26, wherein the cationic substance is a poly-quaternary amine..
28. Use of a recording sheet according to any one of claims 20 to 27, wherein the binder
20 substance is selected from a group consisting of polyvinylpyrrolidone, polyvinyl alcohol, carboxylated cellulosic polymers, polyacrylic acids, hydroxylated polyacrylates, polyacrylamides, starches and gelatine.
29. Use of a recording sheet according to claim 28, wherein the binder substance is selected from a group consisting of carboxyalkyl polymers and hydroxyalkyl polymers, and
25 preferably hydroxymethyl cellulose and hydroxypropyl cellulose, and is more preferably carboxymethyl cellulose.

30. Use of a recording sheet according to claim 28 or claim 29, wherein the binder substance has a molecular weight in the range 790,000 to 1,350,000.
31. Use of a recording sheet according to claim 28, wherein the binder substance is polyvinyl pyrrolidone having a viscosity defined by a K-value of at least 30, and preferably at least 60 and advantageously approximately 90.
32. Use of a recording sheet according to claim 31, wherein the amount of PVP applied to the surface of the recording sheet is in the range 0.15-0.75g/m², and preferably 0.4-0.7g/m², and is advantageously approximately 0.5g/m².
33. Use of a recording sheet according to any one of claims 20 to 32, in which the substances are applied to the surface of the recording sheet as an aqueous solution.
34. Use of a recording sheet according to any one of the preceding claims, in which the recording sheet has a substantially uncoated appearance.
35. Use of a recording sheet according to any one of the preceding claims, the recording sheet being suitable for use on a digital press, in a lithographic printing process, for laser printing, inkjet printing with dye and pigment based inks and hot melt imaging.
36. Use of a recording sheet according to any one of claims 20 to 35, wherein the recording sheet is translucent or transparent.
37. A method of manufacturing a recording sheet for use in a digital printing process on a digital printing press, the method including treating the surface of a paper substrate with a surface treatment including a water soluble cationic substance and a water soluble binder substance.
38. A method according to claim 37, wherein the recording sheet is treated by applying an aqueous solution of the cationic and binder substances to the surface of the sheet.
39. A method according to claim 38, wherein the solution is applied by drawing the semi-manufactured recording sheet through a bath of the solution.